Lentera Perawat
Volume 7 Number 4 : October-December 2026

OPEN ACCESS

Original Article

Associations of resilience and perceived social support with self-care among patients with heart failure: A cross-sectional study

Tobi Pitora[1*], Firmansyah[1]
[1] Program Studi DIII Keperawatan, Politeknik Negeri Subang, Subang, Jawa Barat, Indonesia

***Corresponding Author:**
Tobi Pitora
Program Studi DIII Keperawatan, Politeknik Negeri Subang, Subang, Jawa Barat, Indonesia
Email:
tobi.pitora@polsub.ac.id

Keyword:
Perceived Social Support; Heart Failure; Resilience; Self-Care

© The Author(s) 2026

DOI:
https://doi.org/10.52235/lp.v7i4.996

Article Info:
Received : July 23, 2026
Revised: September 17, 2026
Accepted : October 10, 2026

Lentera Perawat
e-ISSN : 2830-1846
p-ISSN : 2722-2837

This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License.

Abstract

Background: Effective heart failure (HF) management requires comprehensive self-care. In multicultural societies, self-care is shaped by internal psychological resilience and external social support that influence treatment decisions.
Objective: This study aimed to examine the associations of resilience and perceived social support with self-care among patients with heart failure.
Methods: This single-centre cross-sectional study was reported in accordance with the STROBE statement. Participants were enrolled using consecutive sampling at an outpatient cardiology clinic in Subang, West Java, Indonesia. Eligible participants were adults with a physician-confirmed diagnosis of HF (NYHA I–III) documented in the medical records, with a diagnosis of at least six months' duration. Resilience, perceived social support and self-care were measured with the 10-item Connor–Davidson Resilience Scale, the Medical Outcomes Study Social Support Survey (MOS-SSS) and the Self-Care of Heart Failure Index (SCHFI) v7.2, respectively. Unadjusted associations were analysed using Spearman's rank correlation with 95% confidence intervals.
Results: Of 40 patients screened, 36 were analysed. The mean age was 65.17 ± 7.07 years, and 20 (55.6%) were male. The mean resilience score was 36.03 ± 3.96, and the mean perceived social support score was 87.64 ± 4.07. Resilience showed a moderate positive correlation with self-care (ρ = 0.545, 95% CI 0.254–0.745, p = 0.001) and a moderate positive correlation with perceived social support (ρ = 0.513, 95% CI 0.212–0.725, p = 0.001).
Conclusion: Resilience and perceived social support were each positively associated with self-care in this sample of patients with heart failure; the association was moderate for resilience and moderate for perceived social support. Because the design was cross-sectional and the analyses were unadjusted and based on a small single-centre sample, these findings are hypothesis-generating and do not show that either factor drives self-care. Whether assessing both factors adds value to routine self-care education.

Background

Heart failure is a clinical condition that leads to high rates of mortality and morbidity both globally and in Indonesia (Pitora et al., 2022), with a rehospitalization rate of 38.4% within one year after treatment and a mortality rate of 22.8% (Wideqvist et al., 2021). These high figures are closely linked to patients' inability to manage their own care at home, which is a major factor contributing to the worsening of symptoms (Sedlar et al., 2021). Self-care is a crucial aspect for heart failure patients in managing, monitoring, and maintaining their condition (Jaarsma et al., 2021). Self-care helps patients manage symptoms such as shortness of breath, palpitations, and chest pain, as well as monitor fluid intake, check for edema in the extremities, track daily weight, and manage physical activity (Niriayo et al., 2024).

The implementation of self-care still faces several barriers, caused by both internal and external factors. Internal factors that can affect individuals include lack of knowledge (Kamath et al., 2021), impaired mental health, difficulty in understanding and applying the information provided (Philip et al., 2024), and low self-confidence (Kamath et al., 2020). External factors include family support systems, financial difficulties, staffing shortages, and changes in healthcare providers (D'Souza et al., 2025). Taken together, this evidence suggests that health education alone is unlikely to be sufficient, because the point at which self-care fails is often the moment of judgement deciding whether an emerging symptom warrants action rather than the acquisition of knowledge itself (Sedlar et al., 2021).

Resilience, defined as the capacity to adapt in the face of adversity, has been proposed as an internal protective resource in chronic illness. In patients with HF, lower resilience has been associated with a heavier symptom burden, greater kinesiophobia, and poorer quality of life (Chen et al., 2025; Li et al., 2024). However, the evidence linking resilience directly to self-care behaviour is both limited and inconsistent. Meraz et al. (2023) reported that resilience contributed to medication adherence and self-care among adults with HF, whereas van

Rijn et al. (2023) found no consistent association between resilience and all domains of self-care. This inconsistency is one of the gaps the present study addresses.

The evidence on perceived social support is more consistent in direction. Megiati et al. (2022) reported a significant relationship between perceived social support and self-care among hospitalised HF patients; Cené et al. (2013) showed that the association between perceived social support and self-care maintenance is mediated by self-care confidence; and a systematic review by Babygeetha and Devineni (2024) found that all eleven reviewed studies reported a positive correlation between social support and adherence to self-care. What remains unclear is how this association appears in settings other than those in which the instruments and the dominant self-care model were developed. Widely used clinical recommendations Jaarsma et al., (2021) assume a largely autonomous patient, whereas qualitative and review evidence from India indicates that family members are frequently involved in the practical execution of self-care and in help-seeking (D'Souza et al., 2025; Kamath et al., 2020; Kamath et al., 2021), and Indonesian studies list family and social factors among the determinants of self-care (Pitora et al., 2022; Siregar, 2024).

Accordingly, the specific gaps addressed are as follows. Previous studies have reported inconsistent findings regarding the association between resilience and self-care (Meraz et al., 2023; van Rijn et al., 2023), highlighting the need for further investigation across different populations and healthcare contexts. In addition, the extent to which perceived social support is associated with self-care among Indonesian outpatients with heart failure remains insufficiently established, particularly given the need to examine these relationships within the local sociocultural context. Resilience and perceived social support may also be interrelated, meaning that their individual associations with self-care could partly reflect shared variance. Examining both associations within the same sample using consistent self-care measures therefore represents an important preliminary step toward a more comprehensive understanding of these relationships. Accordingly, this study aimed to examine the unadjusted associations of resilience and perceived social support with self-care among Indonesian outpatients with heart failure. By examining both factors within the same population and reporting their associations using comparable measures, this study seeks to contribute context-specific evidence to the existing literature without presupposing that either factor has a stronger association with self-care.

Methods

Study Design

This study was conducted using a single-centre cross-sectional design (Wang & Cheng, 2020). The manuscript is reported in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement for cross-sectional studies (Cuschieri, 2019).

Setting

Data were collected at Hasna Medika Clinic, located in Subang, West Java, Indonesia. Recruitment took place in the outpatient cardiology clinic between June 2026 and August 2026. Questionnaires were administered through an interview with a trained research assistant in a private area of the clinic and took approximately 30 minutes to complete.

Participants and sampling

Participants were enrolled using consecutive sampling. Every patient attending the study site during the recruitment period who met the eligibility criteria was approached in the order of presentation and invited to participate, until the predetermined sample size was reached. Inclusion criteria were: (a) adults aged ≥18 years; (b) a diagnosis of heart failure confirmed by the treating cardiologist and documented in the medical record; (c) NYHA functional class I–III as documented by the treating clinician; and (d) a diagnosis of at least six months' duration. Exclusion criteria were a psychiatric or cognitive disorder and inability to complete the questionnaires. Psychiatric and cognitive disorders were identified solely from the medical record. All three instruments were completed by the patient (interviewer-administered).

Participant flow. During the recruitment period, 40 patients attended the clinic and were screened; 36 were eligible; 36 were approached; 4 declined participation; and 36 completed all instruments and were analysed.

Instruments

The 10-item Connor–Davidson Resilience Scale (CD-RISC-10) was used. The CD-RISC-10 is the short form of the 25-item Connor–Davidson Resilience Scale (Connor & Davidson, 2003) and was developed and validated by Campbell-Sills and Stein (2007). Each item is rated from 0 (not true at all) to 4 (true nearly all the time), giving a total score of 0–40, with higher scores indicating greater resilience (Huang et al., 2025). Previous validation evidence: Perwitasari and Wulandari (2024) reported Cronbach's α values between 0.711 and 0.906.

The Medical Outcomes Study Social Support Survey (MOS-SSS) (Sherbourne & Stewart, 1991) was used. The instrument contains 19 functional-support items rated on a 5-point scale from 1 (none of the time) to 5 (all of the time) across four dimensions (emotional/informational, tangible, affectionate, and positive social interaction), with higher scores indicating greater perceived availability of support. The overall support index was calculated as the mean of the 19 items, transformed linearly to a 0–100 (Pitora et al., 2022). The MOS-SSS asks respondents how often each type of support is available to them and does not attribute that support to a specific source; it therefore measures perceived social support in general and cannot be interpreted as a measure of family support.

The Self-Care of Heart Failure Index (SCHFI) version 7.2 was used. This study used the Indonesian-language version of the SCHFI, available at https://self-care-measures.com/project/patient-version-schfi-indonesian-2/. SCHFI v7.2 comprises 39 items in four conceptually distinct scales: self-care maintenance, symptom perception, self-care management, and self-care confidence (Riegel et al., 2019(Pitora et al., 2022b)). Each scale is scored separately and standardised to a 0–100 metric. A score of ≥70 on a scale is conventionally regarded as adequate self-care (Riegel et al., 2019; Świątoniowska-Lonc et al., 2021).

Statistical analysis

Data were analysed using SPSS version 31.0. Categorical variables are presented as frequencies and percentages, and continuous variables as means with standard deviations, medians with interquartile ranges (IQR) and observed minimum–maximum values. The distribution of each continuous variable was assessed with the Shapiro–Wilk test, which tests normality only. Spearman's rank correlation coefficient was used for all bivariate analyses because the scores are bounded and partly ordinal, were not normally distributed (Shapiro–Wilk $P < 0.05$, and the sample was small; Spearman's coefficient assesses monotonic rather than linear association and does not require normality. Correlation magnitude was interpreted as weak (<0.40), moderate (0.40–0.59) or strong (≥0.60). A two-sided p-value <0.05 was considered statistically significant. All analyses were unadjusted and exploratory, and no correction for multiple testing was applied.

Ethical consideration

This study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki. Ethical approval was obtained from the Health Research Ethics Committee of Muhammadiyah University of Purwokerto (KEPK-UMP) under approval number KEPK/UMP/365/V/026. Written informed consent was obtained from all participants before they participated in this study.

Results

This study involved 36 respondents who completed the questionnaire. The study presents demographic data (Table 1), descriptive scores (Table 2), SCHFI scale scores (Table 3), and the results of the Spearman rank analysis (Table 4).

Table 1. Demographic data and respondent characteristics (n = 36)

Variable	Frequency (n)	Percentage (%)
Gender		
Male	20	55.6
Female	16	44.4
Education		
Elementary school	2	5.6
Junior high school	3	8.3
Senior high school	27	75.0
Diploma/University	4	11.1
NYHA class		
Class I	8	22.2
Class II	28	77.8
Class III	0	0.0

Table 1 shows the characteristics of the respondents by gender; the majority were male,

totalling 20 (55.6%). In terms of educational level, the majority of respondents had completed senior high school (SMA), totalling 27 people (75.0%). According to the NYHA classification, 28 respondents were classified as NYHA Class II (77.8%). Although the protocol permitted NYHA class I–III, no eligible patient in class III was encountered during the recruitment period.

Table 2. Descriptive statistics of age, body weight, duration of illness, resilience and social support

Variable	Mean ± SD	Median (IQR)	Min–Max	Possible Range
Age (years)	65.17 ± 7.065	65.00 (11)	51–81	–
Weight (kg)	64.83 ± 10.811	62.50 (17)	43–86	–
Duration of illness (years)	3.08 ± 1.360	3.00 (2)	1–7	–
Resilience (CD-RISC-10)	36.03 ± 3.960	37.00 (7)	26–40	0–40
Perceived social support (MOS-SSS)	87.64 ± 4.068	87.00 (6)	79–95	0–100

The mean age of respondents was 65.17 ± 7.065 years (range 51–81). Mean body weight was 64.83 ± 10.811 kg (range 43–86 kg). Mean duration of illness was 3.08 ± 1.360 years (range 1–7 years). The resilience score had a mean of 36.03 ± 3.960 (range 26–40; possible range 0–40). The social support score had a mean of 87.64 ± 4.068 (range 0–100).

Table 3. Standardised (0–100) scores of the SCHFI v7.2 scales

SCHFI v7.2 scale	n	Mean ± SD	Median (IQR)	Min–Max
Self-care maintenance	36	50.39 ± 3.450	50.00 (5)	45–55
Symptom perception	36	75.03 ± 7.751	76.50 (5)	38–88
Self-care management	36	59.69 ± 5.382	60.00 (10)	43–65
Self-care confidence	36	91.14 ± 9.451	90.00 (10)	40–60

Table 3 presents the scores for the three SCHFI v7.2 behavioural scales and, separately, self-care confidence. The mean score for self-care maintenance was 50.39 ± 3.450 (range 45–55), for symptom perception 75.03 ± 7.751 (range 38–88), for self-care management 59.69 ± 5.382 (range 43–65), and for self-care confidence 91.14 ± 9.451 (range 40–60). All mean scale scores were below the conventional adequacy threshold of 70.

As shown in Table 4, resilience was positively and significantly correlated with the self-care composite score, with a moderate correlation strength (ρ = 0.545, 95% CI 0.254–0.745, p = 0.001). Perceived social support was also positively and significantly correlated with it, with a moderate correlation strength (ρ = 0.513, 95% CI 0.212–0.725, p = 0.001). The two confidence intervals overlap, so the data do not establish that one association is stronger than the other.

Table 4. Spearman's rank correlation of resilience and perceived social support with self-care

Predictor	n	ρ	95% CI	p-value
Resilience	36	0.545	0.254–0.745	0.001
Perceived social support	36	0.513	0.212–0.725	0.001

Discussion

This study found positive and statistically significant associations of resilience (moderate; ρ = 0.545, p = 0.001) and of perceived social support (moderate; ρ = 0.513, p = 0.001) with self-care in patients with heart failure. The point estimate was larger for perceived social support, but the confidence intervals overlap (0.254–0.745 and 0.212–0.725), so a difference in strength cannot be concluded. These findings suggest that patients' ability to practice self-care is associated not only with their individual psychological adaptive capacity but also with the perceived availability of support from their social environment. These results are important because self-care in heart failure involves a series of behaviors that must be performed consistently, such as monitoring symptoms, managing fluid intake, monitoring body weight, regulating physical activity, and making decisions when health conditions change (Jaarsma et al., 2021; Niriayo et al., 2024).

The characteristics of the respondents provide important context for interpreting these findings. The average age of the respondents was 65.17 ± 7.07 years, ranging from 51 to 81 years, and the majority of respondents were male (55.6%). A total of 77.8% of respondents were in NYHA functional class II, and there were no respondents in NYHA class III. Additionally, the majority of respondents had a high school education (75.0%). These conditions indicate that the respondents were in a relatively advanced age group with functional limitations primarily in the moderate category. In this group, the continuity of self-care is crucial because patients need to manage their condition in their daily lives for many years (Yamanaka et al., 2024) . However, the results of this study cannot be directly generalized to patients with more severe heart failure, younger age groups, or populations with different educational levels.

The mean resilience score of 36.03 ± 3.96 out of a possible 40, with an observed maximum equal to the scale maximum, indicates high self-reported resilience in this sample, and the mean perceived social support score of 87.64 ± 4.07 out of 95 likewise indicates high perceived support. By contrast, the mean SCHFI scale scores (maintenance 50.39, symptom perception 75.03, management 59.69 and confidence 91.14) were all well below the conventional adequacy threshold of 70. On average, therefore, self-care in this sample was not adequate despite high resilience and perceived support. The distributions were also narrow (Table 2 and Table 3), which has implications for interpreting the correlations (see Limitations).

These findings on resilience are consistent with the study by Meraz et al. (2023), which reported that resilience contributes to treatment adherence and self-care among adults with heart failure. A study by Li et al. (2024) also showed that resilience is associated with psychological responses to symptom burden and kinesiophobia, while Chen et al. (2025) demonstrated a link between resilience and the relationship between fear of disease progression and quality of life. Our weak association also differs from the stronger conclusion of Meraz et al. and is compatible with the inconsistent findings of van Rijn et al. (2023). The findings from these studies provide a basis for the notion that resilience can serve as an internal resource that helps patients cope with the physical and psychological consequences of chronic illness. However, these findings must be interpreted with caution because the cross-sectional design does not allow for the conclusion that resilience causes an increase in self-care. The observed associations merely indicate a correlation at the time of measurement.

The study results also showed that perceived social support has a positive and significant relationship with self-care, with a moderate correlation ($\rho = 0.513$; $p = 0.001$). Perceived social support may be an external resource that helps patients practice self-care. In the literature, social support has been proposed to help patients remember to take medication, assist with condition monitoring, provide emotional support, and help patients decide what to do when symptoms change. However, the MOS-SSS measures the perceived availability of support, not support actually received, and we did not measure whether any of these behaviours occurred. These pathways are therefore possible explanations from the literature, not findings of this study.

These findings are consistent with the study by Megiati et al. (2022), which found a significant association between perceived social support and self-care among heart failure patients. Cené et al. (2013) also demonstrated that perceived social support is associated with self-care maintenance, with self-care confidence acting as a mediator. Furthermore, a systematic review by Babygeetha and Devineni (2024) reported that all the studies examined showed a positive relationship between social support and adherence to self-care behaviors in patients with coronary heart disease and heart failure. The consistency in the direction of these relationships is compatible with the interpretation that social support is relevant to maintaining self-care behaviors in chronic diseases.

Several mechanisms, none of them tested here, could explain such an association. Social support may increase patients' confidence in their ability to practice self-care, provide practical assistance in following health recommendations, and help patients resolve problems when they encounter obstacles. Fivecoat et al. (2018) demonstrated that social support predicts self-care confidence in patients with heart failure, while Graven et al. (2018) showed that interventions combining social support and problem-solving can promote

self-care. The association could also run in the opposite direction, or both variables could be related to a third factor.

Overall, the findings are compatible with the view that self-care among heart failure patients is related to a combination of internal and external resources. Resilience represents the patient's ability to adapt to the demands of the illness, while perceived social support represents the social resources available to the patient. We did not measure knowledge, so this study cannot test whether self-care is explained by more than knowledge of the illness. The literature suggests that patients may know what actions they should take, but that their implementation is also influenced by their ability to cope with the burden of the disease, their belief in their own capabilities, and the support available to them.

The clinical implications of these findings are tentative. If they are replicated in larger and adjusted studies, self-care education for patients with heart failure might include a brief assessment of resilience and perceived social support in addition to information about symptoms, medication, diet, physical activity, and condition monitoring; this study did not evaluate whether doing so improves self-care or outcomes. Patients with more limited psychological or social resources may need more targeted support. Involving family members or caregivers is often recommended in the literature, but because the MOS-SSS did not measure family support, our data do not address it.

Limitations

Several limitations should be considered. The cross-sectional study design does not allow for causal conclusions or the direction of the relationship; it is equally possible that patients who manage their self-care well subsequently feel more resilient and better supported. The relatively small sample of 36 patients also precluded robust multivariable modelling. All analyses are therefore unadjusted, and confounding is likely. Age, NYHA class, education, and duration of illness were recorded but not adjusted for; comorbidity, cognitive status, depression, living arrangement, and socioeconomic factors were not measured. Each of these could be related to both the predictors and self-care, so the direction and size of the bias are unknown. The distributions of resilience (26–40 on a 0–40 scale), perceived social support (79–95 on a 0–100 scale) and self-care were narrow, with resilience reaching the scale maximum. Restricted range and ceiling effects can reduce or distort correlation coefficients and limit generalisation to patients with low resilience or low support. The sample was dominated by older patients (mean age 65.17 years), all of whom were in NYHA Class I or II, and the majority of whom had a high school education, which limits the generalizability of these findings to younger patients, patients with more advanced disease, and populations with lower educational levels. Furthermore, although consecutive sampling at a single facility reduces selection bias compared to purposive sampling, it does not result in a random sample, so residual selection effects remain; in addition, 4 eligible patients declined participation, so non-participation bias cannot be excluded. Finally, all measures were self-reported in an interview, which may introduce social desirability bias; the MOS-SSS measures perceived general support and not family support.

Conclusion and Recommendation

In two community-dwelling women aged 33 and In this single-center cross-sectional study, higher psychological resilience and higher perceived social support were each positively and significantly associated with self-care among patients with heart failure; the association was moderate for resilience and moderate for perceived social support. The analyses were unadjusted and cannot show causation. Whether brief assessments of resilience and perceived social support are a useful addition to self-care education and discharge planning should be tested in future work. Future research should employ a longitudinal design to clarify the direction of the relationship, use a larger sample that allows for multivariate adjustments and analysis at the SCHFI scale level, implement instruments specifically designed to measure family or spousal support, and consider mixed-methods or dyadic designs in which patients and family caregivers are evaluated simultaneously.

Acknowledgement

The authors would like to express their sincere appreciation to the Subang State Polytechnic for the financial and institutional support provided for this research. We also thank the Hasna Medika Subang Heart Clinic, all participants, and everyone who contributed to the successful completion of this study.

Funding Source
This research was funded by an internal research grant from Subang State Polytechnic.

Declaration of conflict of interest
The authors declare no competing interests.

Declaration on the Use of AI
The authors declare that artificial intelligence (AI) tools were used solely to improve the readability, grammar, language, and overall clarity of the manuscript. All scientific content, including research design, data collection, data analysis, interpretation of results, and conclusions, was developed and verified by the authors. The authors take full responsibility for the accuracy, originality, and integrity of the manuscript.

Data Availability Statement
Data sharing is not applicable to this article.

References

Babygeetha, A., & Devineni, D. (2024). Social support and adherence to self-care behavior among patients with coronary heart disease and heart failure: A systematic review. Europe's Journal of Psychology, 20(1), 63–77. https://doi.org/10.5964/ejop.12131

Campbell-Sills, L., & Stein, M. B. (2007). Psychometric analysis and refinement of the Connor–Davidson Resilience Scale (CD-RISC): Validation of a 10-item measure of resilience. Journal of Traumatic Stress, 20(6), 1019–1028. https://doi.org/10.1002/jts.20271

Cené, C. W., Haymore, L. B., Dolan-Soto, D., Lin, F.-C., Pignone, M., DeWalt, D. A., Wu, J.-R., Jones, C. D., & Corbie-Smith, G. (2013). Self-care confidence mediates the relationship between perceived social support and self-care maintenance in adults with heart failure. Journal of Cardiac Failure, 19(3), 202–210. https://doi.org/10.1016/j.cardfail.2013.01.009

Chen, C., Sun, X., Zhang, Y., Xie, H., Kou, J., & Zhang, H. (2025). Fear of progression and quality of life in patients with heart failure: A cross-sectional study on the multiple mediation of psychological distress and resilience. BMC Nursing, 24(1). https://doi.org/10.1186/s12912-025-02688-8

Connor, K. M., & Davidson, J. R. T. (2003). Development of a new resilience scale: The Connor–Davidson Resilience Scale (CD-RISC). Depression and Anxiety, 18(2), 76–82. https://doi.org/10.1002/da.10113

Cuschieri, S. (2019). The STROBE guidelines. Saudi Journal of Anaesthesia, 13(Suppl 1), S31–S34. https://doi.org/10.4103/sja.SJA_543_18

D'Souza, P. J. J., Lewis, M. S., Paramasivam, G., Noronha, J. A., Kusumavathi, P., Devasia, T., & George, L. S. (2025). Factors associated with self-care behavior among heart failure patients in India: A systematic review. Journal of Education and Health Promotion, 14(1). https://doi.org/10.4103/jehp.jehp_1778_24

Fivecoat, H. C., Sayers, S. L., & Riegel, B. (2018). Social support predicts self-care confidence in patients with heart failure. European Journal of Cardiovascular Nursing, 17(7), 598–604. https://doi.org/10.1177/1474515118762800

Graven, L. J., Gordon, G., Keltner, J. G., Abbott, L., & Bahorski, J. (2018). Efficacy of a social support and problem-solving intervention on heart failure self-care: A pilot study. Patient Education and Counseling, 101(2), 266–275. https://doi.org/10.1016/j.pec.2017.09.008

Huang, J., Liu, X., Wang, D., Luan, X., Yao, W., & Chen, Z. (2025). Perceived social support and psychological resilience as mediators between social frailty and the frailty of older patients with heart failure: a cross-sectional study. BioPsychoSocial Medicine, 19(1), 25. https://doi.org/10.1186/s13030-025-00345-9

Jaarsma, T., Hill, L., Bayes-Genis, A., La Rocca, H.-P. B., Castiello, T., Čelutkienė, J., Marques-Sule, E., Plymen, C. M., Piper, S. E., Riegel, B., Rutten, F. H., Ben Gal, T., Bauersachs, J., Coats, A. J. S., Chioncel, O., Lopatin, Y., Lund, L. H., Lainscak, M., Moura, B., … Strömberg, A. (2021). Self-care of heart failure patients: Practical management recommendations from the Heart Failure Association of the European Society of Cardiology. European Journal of Heart Failure, 23(1), 157–174. https://doi.org/10.1002/ejhf.2008

Kamath, D., Bhuvana, K., Dhiraj, R., Xavier, D., Varghese, K., Salazar, L., Granger, C., Pais, P., & Granger, B. (2020). Patient and caregiver reported facilitators of self-care among patients with chronic heart failure: Report from a formative qualitative study. Wellcome Open Research, 5, 10. https://doi.org/10.12688/wellcomeopenres.15485.1

Kamath, D. Y., Bhuvana, K. B., Salazar, L. J., Varghese, K., Kamath, A., Idiculla, J., Pais, P., Kulkarni, S., Granger, B. B., & Xavier, D. (2021). A qualitative, grounded theory exploration of the determinants of self-care behavior among Indian patients with a lived experience of chronic heart failure. PLOS ONE, 16(1), e0245659. https://doi.org/10.1371/journal.pone.0245659

Li, M., Cheng, L., & Jiang, Y. (2024). The chain mediating role of rumination and psychological resilience in symptom burden and kinesiophobia in patients with chronic heart failure. Frontiers in Psychiatry, 15. https://doi.org/10.3389/fpsyt.2024.1474715

Megiati, H. M., Grisante, D. L., D'Agostino, F., Santos, V. B., & Lopes, C. T. (2022). Relationship between perceived social support and self-care of patients with heart failure. Acta Paulista de Enfermagem, 35. https://doi.org/10.37689/acta-ape/2022AO0129666

Meraz, R., McGee, J., Caldwell, E. P., Ke, W., & Osteen, K. (2023). The impact of resilience, health literacy, and social support on medication adherence and self-care among

adults with heart failure. Journal of Cardiovascular Nursing, 38(5), 415–424. https://doi.org/10.1097/JCN.0000000000000948

Niriayo, Y. L., Yemane, B., Asgedom, S. W., Teklay, G., & Gidey, K. (2024). Prevalence and predictors of poor self-care behaviors in patients with chronic heart failure. Scientific Reports, 14(1). https://doi.org/10.1038/s41598-024-52611-5

Noviana, C. M., & Zahra, A. N. (2022). Social support and self-management among end-stage renal disease patients undergoing hemodialysis in Indonesia. Journal of Public Health Research, 11(2). https://doi.org/10.4081/jphr.2021.2733

Perwitasari, P., & Wulandari, R. P. (2024). Validity and reliability of Connor–Davidson Resilience Scale (CD-RISC) 10 items on pregnant women. International Journal of Midwifery Research, 4(1). https://doi.org/10.47710/ijmr.v4i1.68

Philip, A., Shastry, C. S., Unnikrishnan, M. K., & Utagi, B. (2024). Empowering selfcare through patient education in heart failure patients: A multimodal approach comprising of PPILs, videos, and personalized advice. Journal of Education and Health Promotion, 13(1). https://doi.org/10.4103/jehp.jehp_1797_23

Pitora, T., Pahria, T., & Sari, E. A. (2022). Analysis of factors related to self-care in chronic heart failure patients in Indonesian. Media Keperawatan Indonesia, 5(4), 309. https://doi.org/10.26714/mki.5.4.2022.309-316

Riegel, B., Barbaranelli, C., Carlson, B., Sethares, K. A., Daus, M., Moser, D. K., Miller, J., Osokpo, O. H., Lee, S., Brown, S., & Vellone, E. (2019). Psychometric testing of the revised Self-Care of Heart Failure Index. Journal of Cardiovascular Nursing, 34(2), 183–192. https://doi.org/10.1097/JCN.0000000000000543

Sedlar, N., Lainscak, M., & Farkas, J. (2021). Self-care perception and behaviour in patients with heart failure: A qualitative and quantitative study. ESC Heart Failure, 8(3), 2079–2088. https://doi.org/10.1002/ehf2.13287

Sherbourne, C. D., & Stewart, A. L. (1991). The MOS social support survey. Social Science & Medicine, 32(6), 705–714. https://doi.org/10.1016/0277-9536(91)90150-B

Siregar, L. (2024). Analysis of factors related to self-care management in heart failure patients: Scoping review. Jurnal Aisyah: Jurnal Ilmu Kesehatan, 9(2). https://doi.org/10.30604/jika.v9i2.2592

Świątoniowska-Lonc, N., Polański, J., Pilarczyk-Wróblewska, I., & Jankowska-Polańska, B. (2021). The Revised Self-Care of Heart Failure Index — a new tool for assessing the self-care of Polish patients with heart failure. Kardiologia Polska, 79(7–8), 841–847. https://doi.org/10.33963/KP.a2021.0009

van Rijn, M. M., Jaarsma, T., de Man-van Ginkel, J. M., & Weldam, S. W. M. (2023). Association between self-care and resilience. Journal of Cardiovascular Nursing, 38(2), E70–E77. https://doi.org/10.1097/JCN.0000000000000908

Wang, X., & Cheng, Z. (2020). Cross-sectional studies. Chest, 158(1), S65–S71. https://doi.org/10.1016/j.chest.2020.03.012

Wideqvist, M., Cui, X., Magnusson, C., Schaufelberger, M., & Fu, M. (2021). Hospital readmissions of patients with heart failure from real world: Timing and associated risk factors. ESC Heart Failure, 8(2), 1388–1397. https://doi.org/10.1002/ehf2.13221

Yamanaka, S., Nochioka, K., Hayashi, H., Shiroto, T., Takahashi, J., Miyata, S., Yasuda, S., & Shimokawa, H. (2024). Age-stratified profiles and outcomes of patients with heart failure with preserved ejection fraction. ESC Heart Failure, 11(4), 2223–2233. https://doi.org/10.1002/ehf2.14798